

AMENDMENTS TO THE CLAIMS:

Claim 1. (Canceled).

Claim 2. (Currently amended) A variable nozzle control apparatus adapted for a turbocharger in an engine comprising:

a variable nozzle having a vane;

an engine electronic control unit ECU for identifying an operating situation of the engine by detected outputs of sensors in the engine and outputting an opening indication information of the vane ~~a control signal~~; and

an electronic control actuator for controlling an opening of the vane in response to the opening indication information of the vane ~~control signal~~ transmitted from the engine electronic control unit ECU,

wherein the electronic control actuator comprises:

an electronic control circuit section for receiving the ~~an~~ opening indication information of the vane from the engine electronic control unit ECU and outputting an output signal;

a driving section for receiving the output signal from the electronic control circuit section and driving the vane of the variable nozzle through an output shaft; and

an angle sensor for detecting a rotation angle of the output shaft to output an actual angle signal of the output shaft to the electronic control circuit,

wherein the electronic control circuit section comprises:

an angle signal converting device for converting the opening indication information of the vane into a target angle signal of the output shaft,

a comparing device for comparing the target angle signal from the angle signal converting device with the actual angle signal from the angle sensor, and outputting an indication signal corresponding to a difference between the target signal and the actual signal,

a calculating device for carrying out a calculation processing over the indication signal transmitted from the comparing device, and

a motor driving logic generating device for inputting the output signal to a motor driver of the driving section.

Claim 3. (Previously presented) The variable nozzle control apparatus according to claim 2, wherein the driving section comprises:

the motor driver for receiving the output signal the electronic control circuit and outputting a driving signal; and

a motor section driven by the driving signal and coupled to the output shaft through a reduction gear mechanism, and the output shaft driving the vane of the variable nozzle.

Claim 4. (Currently amended) The variable nozzle control apparatus according to claim 2, wherein the electronic control circuit section further comprises:

a wiping command device for outputting a command signal to execute a wiping operation for causing the vane to be stopped in a full open position via a full closing position at least once in a full operating region of the vane of the variable nozzle by a status indication information transmitted from the engine electronic control unit ECU based on a stop of the engine by an OFF operation of an ignition switch; and

a wiping processing device for introducing the command signal of the wiping command device into the motor driving logic generating device.

Claim 5. (Previously presented) An electronic controller for a variable nozzle control apparatus comprising:

an angle sensor that detects a rotation angle of an output shaft, which drives a vane of a variable nozzle, and that outputs an actual angle signal;

an electronic control circuit that receives a vane opening signal from an engine electronic control unit and that provides an output signal based upon the vane opening signal and the actual angle signal; and

a driver that drives the output shaft based upon the output signal.

Claim 6. (Previously presented) The controller of claim 5, wherein said electronic control circuit comprises an angle signal converter that converts the vane opening signal into a target angle signal.

Claim 7. (Previously presented) The controller of claim 5, wherein said electronic control circuit comprises a wiping commander that outputs a wiping command to cause the variable nozzle to execute a wiping operation.

Claim 8. (Previously presented) The controller of claim 7, wherein the wiping operation comprises positioning the vane in a full open position.

Claim 9. (Previously presented) The controller of claim 7, wherein the wiping operation comprises positioning the vane in a full closed position.

Claim 10. (Previously presented) The controller of claim 7, wherein the wiping operation comprises moving the vane through a full operating range.

Claim 11. (Previously presented) The controller of claim 7, wherein the wiping commander outputs the wiping command in response to an indicator signal from the engine electronic unit that indicates an engine stop.

Claim 12. (Previously presented) The controller of claim 7, wherein said electronic control circuit further comprises a wiping processor that introduces the wiping command to a motor driver.

Claim 13. (Previously presented) The controller of claim 12, wherein said wiping processor further transmits a status signal indicating an end of a wiping operation to the engine electronic control unit.

Claim 14. (Previously presented) The controller of claim 5, wherein the electronic control circuit comprises a proportional/integral/derivative calculator.

Claim 15. (New) The apparatus of claim 2, wherein the driving section comprises:
a motor including a motor output shaft; and

a reduction gear connected to said motor output shaft that provides a rotation speed at a reduction gear output shaft that is less than said motor output shaft.

Claim 16. (New) The apparatus of claim 15, wherein said angle sensor detects a rotation angle of said reduction gear output shaft.

Claim 17. (New) The controller of claim 5, wherein said driver comprises:

a motor including a motor output shaft; and

a reduction gear connected to said motor output shaft that provides a rotation speed at a reduction gear output shaft that is less than said motor output shaft.

Claim 18. (New) The controller of claim 17, wherein said angle sensor detects a rotation angle of said reduction gear output shaft.